

Application Number 10/036,603
Responsive to Office Action mailed April 19, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-38 (Cancelled).

Claim 39 (Currently Amended): A cross-bar switch comprising:

a set of input ports to receive data packets;

a set of sink ports in communication with said set of input ports to receive and forward said data packets; and

a first port address table adapted to identify a plurality of destinations supported by a first sink port in said set of sink ports; and

a set of data rings internal to the crossbar switch that couples the input ports to the sink ports to communicate the data packets from the input ports of the crossbar switch to the sink ports.

wherein at least one sink port in said set of sink ports snoops said internal set of data rings and accepts those data packets directed to the destinations identified by the first port address table.

Claim 40 (Previously Presented): The cross-bar switch of claim 39, further including:

a set of port address tables, wherein each port address table in said set of port address tables is adapted to identify a plurality of destinations supported by a sink port in said set of sink ports.

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Claim 41 (Previously Presented): The apparatus of claim 39, further including:
a second port address table adapted to identify a second destination as being supported by a second sink port in said set of sink ports,
wherein said first port address table identifies said second destination as being supported by said first sink port.

Claim 42 (Previously Presented): The cross-bar switch of claim 39, wherein said first port address table is adapted to store data identifying a plurality of destinations supported by said first sink port.

Claim 43 (Previously Presented): The cross-bar switch of claim 39, wherein each sink port in said set of sink ports is adapted to concurrently receive a plurality of data packets having different destination addresses.

Claims 44 – 46 (Cancelled).

Claim 47 (Currently Amended): The cross-bar switch of claim 39[[44]], wherein said set of data rings includes a plurality of data rings.

Claim 48 (Previously Presented): The cross-bar switch of claim 39, wherein said first sink port snoops data packets received by said set of input ports and determines whether to accept a first data packet based on a set of criteria, wherein said set of criteria includes said first data packet being targeted to a destination identified in said first port address table.

Claim 49 (Previously Presented): The cross-bar switch of claim 48, wherein said set of criteria further includes:

said first sink port having sufficient storage space for storing said first data packet, and
a total number of packets being received by said first sink port not exceeding a predetermined number of packets.

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Claim 50 (Previously Presented): The cross-bar switch of claim 39, wherein said first sink port includes:

an interface in communication with said set of input ports to receive data from data packets;

a storage buffer coupled to said interface to receive and store said data; and

an output port coupled to said storage buffer to receive said data from said storage buffer and transmit said data on a communications link.

Claim 51 (Currently Amended): The cross-bar switch of claim 50, wherein said storage buffer is adapted to concurrently receive store a plurality of data packets.

Claim 52 (Previously Presented): The cross-bar switch of claim 50, wherein said interface is adapted to access said first port address table to determine whether a data packet has a destination address corresponding to a destination identified in said first port address table.

Claim 53 (Previously Presented): The cross-bar switch of claim 39, wherein said first sink port includes a configuration block adapted to receive configuration packets.

Claim 54 (Previously Presented): The cross-bar switch of claim 53, wherein said configuration block is adapted to store destination identifiers from said configuration packets in said first port address table.

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Claim 55 (Currently Amended): A cross-bar switch comprising:
a set of input ports to receive data packets;
a set of sink ports in communication with said set of input ports to receive and forward said data packets;
a set of data rings internal to the cross-bar switch in communication to communicate the data packets from ~~with~~ said set of input ports and to said set of sink ports; and
a set of port address tables in communication with said set of sink ports, wherein each port address table in said set of port address tables is adapted to identify a plurality of destinations supported by a sink port in said set of sink ports.

Claim 56 (Previously Presented): The cross-bar switch of claim 55, wherein said set of port address tables includes a first port address table adapted to store data identifying a plurality of destinations supported by a first sink port in said set of sink ports.

Claim 57 (Currently Amended): The ~~apparatus~~ cross-bar switch of claim 56, further including:

a second port address table in communication with a second sink port in said set of sink ports and adapted to store data identifying a second destination as being supported by the a second sink port in said set of sink ports,

wherein said first port address table identifies said second destination as being supported by said first sink port.

Claim 58 (Previously Presented): The cross-bar switch of claim 56, wherein said first sink port snoops data packets on each data ring in said set of data rings and determines whether to accept a first data packet based on a set of criteria, wherein said set of criteria includes said first data packet being targeted to a destination identified in said first port address table.

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Claim 59 (Previously Presented): The cross-bar switch of claim 58, wherein said set of criteria further includes:

said first sink port having sufficient storage space for storing said first data packet, and
a total number of packets being received by said first sink port not exceeding a predetermined number of packets.

Claim 60 (Previously Presented): The cross-bar switch of claim 56, wherein said first sink port includes:

a ring interface coupled to said set of data rings to receive data from data packets;
a storage buffer coupled to said ring interface to receive and store said data; and
an output port coupled to said storage buffer to receive said data from said storage buffer and transmit said data on a communications link.

Claim 61 (Currently Amended): The cross-bar switch of claim 60, wherein said storage buffer is adapted to concurrently receive ~~store~~ a plurality of data packets.

Claim 62 (Previously Presented): The cross-bar switch of claim 60, wherein said ring interface is adapted to access said first port address table to determine whether a packet on said set of data rings has a destination address corresponding to a destination identified in said first port address table.

Claim 63 (Previously Presented): The cross-bar switch of claim 55, wherein said first sink port includes a configuration block adapted to receive configuration packets.

Claim 64 (Previously Presented): The cross-bar switch of claim 63, wherein said configuration block is adapted to store destination identifiers from said configuration packets in said first port address table.

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Claim 65 (Currently Amended): A method comprising the steps of:

- (a) a set of input ports receiving a set of data packets;
- (b) a sink port in a set of sink ports, accepting data packets in said set of data packets,

wherein said step (b) includes the step of:

- (1) said sink port determining that a first data packet has a first destination supported by said sink port,
- (2) said sink port accepting said first data packet,
- (3) said sink port determining that a second data packet has a second destination supported by said sink port, wherein said first destination is different than said second destination, and

- (4) said sink port accepting said second data packet; and

(c) said sink port, concurrently collecting data for data packets accepted by said sink port, wherein said step (c) includes the steps of:

- (1) said sink port collecting data for said first data packet, and
- (2) said sink port collecting data for said second data packet concurrently with collecting data for said first data packet.

Claim 66 (Currently Amended): The method of claim 65, further including the step of:

- (d) transferring said set of data packets from said set of input ports to a set of data rings internal to a switch and in communication with said set of sink ports.

Claim 67 (Previously Presented): The method of claim 65, further including the steps of:

(e) an input port in said set of input ports receiving a configuration packet containing data identifying destinations supported by said sink port; and

(f) said sink port collecting data from said configuration packet, wherein said data collected in said step (f) identifies destinations supported by said sink port.

Claim 68 (Previously Presented): The method of claim 67, wherein said data collected in said step (f) identifies said first destination and said second destination.

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Claim 69 (Previously Presented): The apparatus of claim 65, wherein said step (b)(1) includes the step of:

(i) said sink port identifying data in a port address table indicating that said sink port supports said first destination, and
wherein said step (b)(3) includes the step of:

(ii) said sink port identifying data in said port address table indicating that said sink port supports said second destination.

Claim 70 (Previously Presented): The method of claim 65, wherein said step (b) includes the step of:

(5) said sink port determining whether a set of criteria is met, wherein said step (b)(5) includes the steps of:

(i) determining whether said sink port is enabled to receive data packets;

(ii) determining whether said sink port has sufficient resources to store said first data packet and said second data packet;

(iii) determining whether said sink port is currently receiving a maximum allowable number of packets;

(iv) determining whether said first data packet has a number of bytes within a predetermined range; and

(v) determining whether said second data packet has a number of bytes within a predetermined range.

Claim 71 (Previously Presented): The method of claim 65, further including the step of:

(g) said sink port issuing a rejection signal if said sink port determines not to accept said data packet in said step (b), wherein said rejection signal terminates further reception of said data packet by said sink port.

Claim 72 (Previously Presented): The method of claim 65, further including the step of:

(h) said sink port transmitting said data packets collected in said step (c).

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Claim 73 (Previously Presented): The method of claim 65, further including the steps of:

(j) a second sink port in said set of sink ports, accepting data packets in said set of data packets, wherein said step (j) includes the step of:

(1) said second sink port determining that said first data packet is targeted for said first destination, and

(2) said second sink port accepting said first data packet; and

(k) said second sink port collecting data for data packets accepted by said second sink port, wherein said step (k) includes the step of:

(1) said second sink port collecting data for said first data packet.

Claim 74 (Currently Amended): A method of transferring data within a switch comprising the steps of:

(a) a set of input ports receiving a set of data packets;

(b) transferring said set of data packets from said set of input ports to a set of data rings internal to the switch and in communication with a set of sink ports of the switch;

(c) a sink port in said set of sink ports, accepting data packets in said set of data packets from said set of data rings, wherein said step (c) includes the steps of:

(1) said sink port determining that a first data packet has a first destination supported by said sink port,

(2) said sink port accepting said first data packet,

(3) said sink port determining that a second data packet has a second destination supported by said sink port, wherein said first destination is different than said second destination, and

(4) said sink port accepting said second data packet; and

(d) said sink port collecting data for data packets accepted by said sink port, wherein said step (d) includes the steps of:

(1) said sink port collecting data for said first data packet, and

(2) said sink port collecting data for said second data packet.

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Claim 75 (Previously Presented): The method of claim 74, further including the steps of:

(e) an input port in said set of input ports receiving a configuration packet containing data identifying destinations supported by said sink port; and

(f) said sink port collecting data from said configuration packet in said set of configuration packets, wherein said data collected in said step (f) identifies destinations supported by said sink port.

Claim 76 (Previously Presented): The apparatus of claim 74, wherein said step (c)(1) includes the step of:

(i) said sink port identifying data in a port address table indicating that said sink port supports said first destination, and

wherein said step (c)(3) includes the step of:

(ii) said sink port identifying data in said port address table indicating that said sink port supports said second destination.

Claim 77 (Previously Presented): The method of claim 74, wherein said step (c) includes the step of:

(5) said sink port, determining whether a set of criteria is met, wherein said step (c)(5) includes the steps of:

(i) determining whether said sink port is enabled to receive data packets;

(ii) determining whether said sink port has sufficient resources to store said first data packet and said second data packet;

(iii) determining whether said sink port is currently receiving a maximum allowable number of packets;

(iv) determining whether said first data packet has a number of bytes within a predetermined range; and

(v) determining whether said second data packet has a number of bytes within a predetermined range.

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Claim 78 (Previously Presented): The method of claim 74, further including the steps of:

(g) a second sink port in said set of sink ports accepting data packets in said set of data packets, wherein said step (g) includes the step of:

(1) said second sink port determining that said first data packet is targeted for said first destination, and

(2) said second sink port accepting said first data packet; and

(h) said second sink port collecting data for data packets accepted by said second sink port, wherein said step (h) includes the step of:

(1) said second sink port collecting data for said first data packet.

Claim 79 (New): A switch comprising:

a set of input ports to receive data packets; and

a set of sink ports in communication with said set of input ports to receive and forward said data packets,

wherein at least one of the sink ports in said set of sink ports is adapted to concurrently receive from the input ports a plurality of data packets having different destination addresses.

Claim 80 (New): The switch of claim 79, further comprising a set of data rings internal to the crossbar switch to communicate the data packets from said set of input ports and said set of sink ports.